

CLAIMS

What is claimed is:

1. An apparatus for performing a process on a workpiece surface, comprising:

a platen having a top surface, and at least one inlet configured to receive a polishing fluid;

a plurality of holes formed in said top surface;

a manifold system in fluid communication with said at least one inlet and each of said holes;

a controller adapted to supply valve command signals; and

a plurality of valves, each valve being disposed in one of said holes and coupled to said controller to receive said valve command signals and being operable, in response thereto, to selectively move between an open and a closed position.
2. An apparatus according to claim 1, wherein said controller is adapted to supply said command signals to enable each of said valves to be in the open position when covered by said workpiece surface during said process.
3. An apparatus according to claim 2, wherein said controller is adapted to supply said command signals to enable each of said valves to be in the closed position when not covered by said workpiece surface during said process.
4. An apparatus according to claim 1, wherein said controller is adapted to receive hole configuration data pertaining to a configuration for said plurality of holes, and angular position data pertaining to an angular position for said platen, and to base said command signal on said hole configuration data and said angular position data.

5. An apparatus according to claim 4, further comprising a rotary encoder for determining said angular position and transmitting said angular position data to said controller.

6. An apparatus according to claim 5, further comprising a rotary shaft, rotatably supporting said platen and coupled to said rotary encoder.

7. An apparatus according to claim 6, wherein said rotary shaft comprises a supply port through which said polishing fluid is delivered to said inlet.

8. An apparatus according to claim 4, wherein said controller is further adapted to receive timing data pertaining to a time that is required for said polishing fluid to travel from one of said valves to said workpiece surface during said process.

9. An apparatus according to claim 1, wherein said process is selected from the group comprising chemical mechanical planarization, electro-chemical polishing, buffing, and cleaning.

10. A platen for performing a process on a workpiece surface, comprising:

a top surface having a plurality of holes formed therein;

at least one inlet configured to receive a polishing fluid;

a manifold system in fluid communication with said at least one inlet and each of said holes; and

a plurality of valves, each valve being disposed proximate one of said holes and being adapted to receive said valve command signals and operable, in response thereto, to selectively move between an open and a closed position.

11. A platen according to claim 10, further comprising:

a controller, coupled to said platen and adapted to supply said valve command signals to each of said valves.
12. A platen according to claim 11, wherein said controller is adapted to supply said command signals to enable each of said valves to be in the open position when covered by said workpiece surface during said process.
13. A platen according to claim 11, wherein said controller is adapted to supply said command signals to enable each of said valves to be in the closed position when not covered by said workpiece surface during said process.
14. A platen according to claim 11, wherein said controller is adapted to receive hole configuration data pertaining to a configuration for said plurality of holes, and angular position data pertaining to an angular position for said platen, and to base said command signal on said hole configuration data and said angular position data.
15. A platen according to claim 14, further comprising a rotary encoder, coupled to said platen and adapted for determining said angular position and transmitting said angular position data to said controller.
16. A platen according to claim 14, wherein said controller is further adapted to receive timing data pertaining to a time that is required for said polishing fluid to travel from one of said valves to said workpiece surface during said polishing process.

17. The platen according to claim 10, wherein said process is selected from the group comprising chemical mechanical planarization, electro-chemical polishing, buffing, and cleaning. 18. A method for distributing a polishing fluid to a workpiece surface using a chemical-mechanical polishing platen having a top surface, a plurality of holes formed in the top surface, and a plurality of valves, each valve being disposed proximate one of said holes, the method comprising the steps of:

supplying valve command signals from a controller to said valves; and

selectively opening and closing said valves in response to said valve command signals to control fluid distribution to said workpiece surface.

19. A method according to claim 18, wherein said command signals enable each of said valves to be in the open position when covered by said workpiece surface during a chemical-mechanical polishing process.

20. A method according to claim 19, wherein said command signals enable each of said valves to be in the closed position when not covered by said workpiece surface during said chemical-mechanical polishing process.

21. A method according to claim 18, wherein said command signals are based on hole configuration data pertaining to a configuration for said plurality of holes, and angular position data pertaining to an angular position for said platen.

22. A method according to claim 21, further comprising the step of determining said angular position using a rotary encoder and transmitting said angular position data to said controller.

23. A method according to claim 21, wherein said command signals are further based on timing data pertaining to a time that is required for said polishing fluid to travel from one of said valves to said workpiece surface during said chemical-mechanical polishing process.

24. An apparatus for performing a process on a workpiece surface, comprising:

a platen having a top surface, and at least one inlet configured to receive a polishing fluid;

a plurality of holes formed in said top surface;

manifold means in fluid communication with said at least one inlet and each of said holes;

means for providing valve command signals; and

valve means associated with each of said holes and coupled to said means for providing valve command signals, and being operable, in response thereto, to selectively move between an open and a closed position.